

FIG.1 (PRIOR ART)

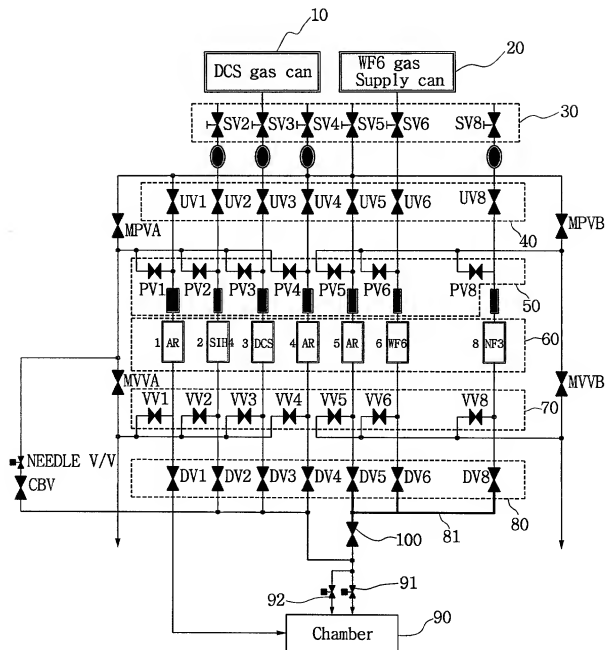


FIG. 2

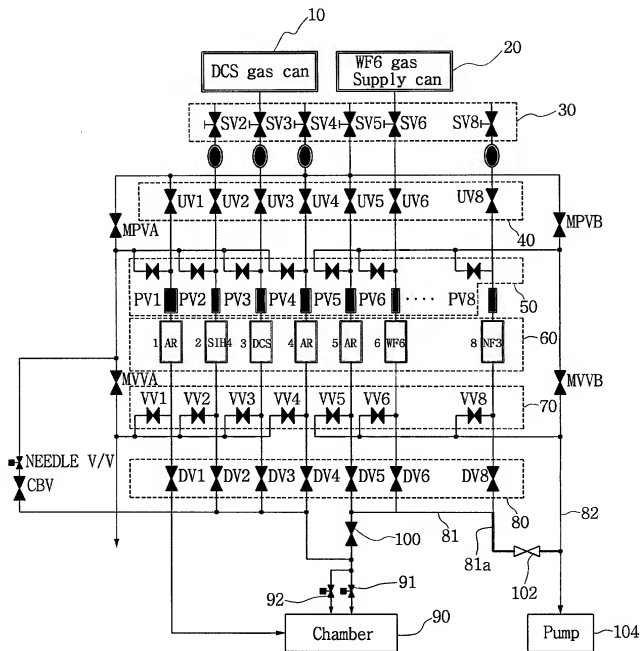


FIG.3

Step Name	Time (sec)	Press (mtorr)	HIVAC	BsAr	SiH ₄	DCS	4Ar	5Ar	WF ₆	VALVE OPEN
1 P/D	20	0	E	50(v)	0	0	50(v)	50(v)	0	UV1,4,5 WV1,4,5 LSV
2 Heat Up	20	300	D	50	0	0	500	500	0	UV1,4,5 DV1,4,5 LSV
3 Heat Up	30	300	D		0	0	500	500	0	UV1,4,5 DV1,4,5 LSV
4 SiH ₄ vent	3	300	D	50	300(v)	0	500	500	0	UV1,2,4,5 DV1,4,5 WV2 LSV
5 SiH ₄ flush	40	300	D	50	300	0	500	200	0	UV1,2,4,5 DV1,2,4,5 LSV
6 P/D	20	0	E	0	0	0	0	0	0	
7 DCS vent	5	0	E	50(v)	0	50(v)	50(v)	50(v)	0	UV1,3,4,5 WV1,3,4,5 LSV
8 DCS flush	10	120	D	100	0	106	500	300	5.5(v)	UV1,3,4,5,6 DV1,3,4,5 WV6 LSV
9 Nucleation	12	120	D	100	0	106	500	300	5.5	UV1,3,4,5,6 DV1,3,4,5,6 LSV
10 Bulk	20	120	D	100	0	185	500	300	13	UV1,3,4,5,6 DV1,3,4,5,6 LSV
11 DCS Post	3	120	D	100	0	175	500	300	0	UV1,3,4,5 DV1,3,4,5 LSV
12 Ar Purge	15	120	D	100	0	0	500	5000	0	UV1,4,5 DV1,4,5 LSV
13 P/D	15	0	E	0	0	0	0	0	0	
14 SiH ₄ Post	3	120	D	100	300	0	500	200	0	UV1,2,4,5 DV1,2,4,5 LSV
15 P/D	30	0	E	0	0	0	0	0	0	

Note:

MFC1,2,3,4 and MFC5,6,8 are divided into GAS BOX A and B.

GAS flowing out of GAS BOX A and B joins one GAS LINE and is again divided into INNER and OUTER MIDDLE V/V.

INNER MIDDLE V/V is FULL OPENED, and OUTER MIDDLE V/V is controlled in the range of 15 to 25mm to maintain UNIFORMITY.

(v) is vented through VENT VALVE.

HIVAC(E) is pumped by turbo pump, pumping (D) is dry-pumped by dry-pump without turbo- pump.